

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 29 SEP 1989

SUBJECT: Performance Audit Inspection (PAI) Report, B. P. Oil Company,
Lima (Ohio) Refinery (OH0002623) (B-304) (AFE112:1E)

FROM: Clyde V. Marion Ph.D., Environmental Scientist
Central District Office (5SCD0)

Clyde V. Marion

TO: Donald R. Schregardus, Chief
Compliance Section (5WQC)

ATTN: Susanne Buthman (5WQC)

THRU: Willie H. Harris, Chief *WHH*
Central District Office (5SCD0)

On July 10-11, 1989, I conducted a Performance Audit Inspection (PAI) at the B. P. Oil Company, Lima (Ohio) Refinery in response to a request through the Water Division for FY'89 inspections. The facility was represented by Messrs. Jerome Grammas, Environmental Engineer, Health-Safety-Environmental Quality, and Dennis Garbig, Chemistry Laboratory Supervisor. The Ohio Environmental Protection Agency (OEPA) was notified on June 29, 1989 of the planned inspection but was unable to participate.

The following attachments are included in this report:

- 1) Compliance Evaluation Form 3560-3
- 2) Facility Flow Diagram of Wastewater Treatment Processes
- 3) Permittee's DMR-QA Study 008
- 4) Facility's letter of reply to a request from OEPA concerning the number of unacceptable analytical results in the permittee's DMR-QA Study 008.

Areas of Inspection were rated as follows:

Permit Verification	- Satisfactory
Facility Site Review	- Satisfactory
Operations & Maintenance	- Satisfactory
Flow Measurement	- Satisfactory
Effluent Quality	- Satisfactory
Sludge Disposal	- Satisfactory
Compliance Schedules	- Not Applicable
Pretreatment Program	- Not Applicable
Self-Monitoring Program	- Less than Marginal
Laboratory Operations	- Better than Marginal

All Company and OEPA representatives contacted concerning any phase of this audit were very cooperative.

If you have any questions regarding this report, please call me at (312) 353-9771.

Attachments

cc: A. R. Winklhofer, 5SEDO

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
ENVIRONMENTAL SCIENCES DIVISION
CENTRAL DISTRICT OFFICE

PERFORMANCE AUDIT INSPECTION

I. PERMITTEE IDENTIFICATION

A. Facility Name and Address

B. P. Oil Company, Lima Refinery
1150 South Metcalf Street
Lima, Ohio 45804-1199

B. Responsible Official

Mr. Doug F. Farris, Plant Manager

C. NPDES Permit Number

OH0002623

D. Permit Effective Date

September 30, 1985

E. Permit Expiration Date

September 27, 1990

F. Receiving Water(s)

Ottawa River

II. DATE(S) OF INSPECTION

July 10-11, 1989

III. PARTICIPANTS

A. Permittee

Mr. Jerome Grammas, Environmental Engineer, Health-Safety-
Environmental Quality

Mr. Dennis Garbig, Chemistry Laboratory Supervisor

B. U.S. EPA, Region V

Dr. Clyde V. Marion, Environmental Scientist

C. Ohio EPA (OEPA)

The Ohio EPA was notified on June 29, 1989 of the planned inspection but was unable to participate.

IV. OBJECTIVES

The objectives of the Performance Audit Inspection (PAI) were to: 1) determine if the wastewater treatment and laboratory operations, that are used to provide the self-monitoring data, follow EPA approved practices, 2) evaluate the quality of the data reported, and 3) rate the facility's overall performance in fulfilling the conditions of its NPDES permit, and any other conditions of compliance.

V. INSPECTION OF TREATMENT PLANT OPERATIONS

A. General Description of Permittee

The B. P. Oil Company, Lima Refinery is a full range refinery that processes approximately 160,000 barrels a day of crude oil to manufacture various products including gasoline, diesel fuel, jet fuel, military jet fuel, kerosene, lubricating oils, benzene, and residuals (coke, heavy fuels).

The treatment processes are briefly summarized as follows (see attached flow diagram):

All process and storm water are combined into common sewers and converge via gravity to the API Separator. In the event of either an hydraulic overload or toxic spill, the flow can be diverted upstream of the API Separator to an earthen impoundment pond. The holding capacity of this pond is equivalent to 2-3 days worth of flow from the refinery.

From the API Separator, the flow is pumped to the Dissolved Air Flotation (DAF) unit. From the DAF unit, the wastewater is pumped via a lift station to the Large Equalization Tank (with a residence time of 24 hours). This tank was designed to stabilize both flow (hydraulic) surges and organic loadings. From the equalization tank, the wastewater flow splits to two aeration tanks, each equipped with floating mechanical aerators. Phosphoric acid is injected into the feed line flow to the aeration tanks as a source of nutrients.

Under a parallel system, the flow from each aerator passes to its own clarifier. Polymer is added to each of the two clarifiers to promote the settling out of solids. Seventy percent of the settled sludge is returned to the aerators as returned activated sludge (RAS). The remaining sludge (30%) is pumped to the Aerobic Digester (10 days retention) for further treatment. A small clarifier is associated with the digester itself for solids removal and separation from the supernatant. Supernatant from the digester is returned to the aeration tanks.

The clear liquid from the clarifiers flows to a collection box from where it is pumped to a rapid sand filter system with 5 cells run in parallel. Flow through the sand filter is by gravity. Backwash water from the sand filter system is returned to the aeration tanks.

From the sand filter, the wastewater flows to two Biological Ponds (settling lagoons) run in series. From the ponds, the treated effluent flows to a concrete rectangular channel that is equipped with a Parshall flume. Following flow measurement, the effluent is discharged to the Ottawa River via Outfall 001 (2IG00001001).

Under further sludge treatment, sludge from the Aerobic Digester is pumped to the Sludge Thickener. From the thickener, the sludge is sent to the Belt Filter Press. The filter cake is ultimately disposed of (as biological sludge) at a State (OEPA) approved land (farm) site. Filtrate from the press and supernatant from the thickener are returned to the aeration tanks.

B. Summary of Significant Findings

1. A small amount of what appeared to be oil sheen was observed on the surface of one side of one of the clarifiers.
2. The final effluent appeared to be fairly clear, showing no evidence of foam, oil sheen or debris.
3. A review of the monthly monitoring reports covering the period June 1988 through June 1989 showed the following exceedances in the permit limits:

January 1989	- Total Chromium (30 Day Avg./Daily Max.)
April	- BOD ₅ (Daily Max.); Phenols (Daily Max.)
June	- Total Phosphorus (Daily Max.)

Based on the overall audit of wastewater treatment operations, the areas of inspection were rated as follows:

Permit Verification	- Satisfactory
Facility Site Review	- Satisfactory
Operations & Maintenance	- Satisfactory
Flow Measurement	- Satisfactory
Effluent Quality	- Satisfactory
Sludge Disposal	- Satisfactory
Compliance Schedules	- Not Applicable
Pretreatment Program	- Not Applicable
Self-Monitoring Program	- See Section VI.
Laboratory Operations	- See Section VI.

VI. INSPECTION OF LABORATORY OPERATIONS

A. Analytical Requirements

1. NPDES Monitoring Requirements

a. Effluent - Days/Week: (1)/(2)/(Daily); 24-hour Composite (C)/Grab (G)

1) High H ₂ O Temp.	Daily - Continuous Monitoring	
2) Dissolved Oxygen (D.O.)		(2) (G)
3) Biochemical Oxygen Demand (BOD ₅)		(2) (C)
4) Chemical Oxygen Demand (COD)		(2) (C)
5) Residue, Total Nonfilterable (TSS)		(2) (C)
6) Oil & Grease, Total (O & G)		(2) (G)
7) Ammonia-nitrogen (NH ₃ -N)		(2) (C)
8) Phosphorus, Total (T. Phos.)		(2) (C)
9) Cyanide, Total (T. CN)		(2) (C)
10) Cyanide, Amenable to Chlorine		(1) (C)
11) Sulfide, Total		(2) (C)
12) Chromium, Hexavalent (Cr ⁺⁶)		(1) (C)
13) Chromium, Total (Cr)		(1) (C)
14) Phenolics 4AAP, Total		(2) (C)

2. NPDES On-site Monitoring Analyses

a. For Monthly Monitoring Reporting

All of the required NPDES monitoring analyses are conducted on-site by the permittee laboratory.

B. Summary of Significant Findings

1. Sampling

- a. Both grab and 24-hour composited samples are collected downstream of the Parshall flume in the effluent channel.

- b. Dates, times, and location of sampling are recorded. Representative samples are collected. The 24-hour samples are time-composited (at 19 minute intervals).
- c. Three significant deficiencies were observed in the sample monitoring program:
 - 1) The composites were not under refrigeration while being collected. The refrigerator used to hold the samples was at 22.8°C (73°F). The samples should be collected and held at 4°C (39.2°F) until analyzed.
 - 2) No daily or in-use temperature log was being maintained on the refrigerator.
 - 3) Because of the permit's requirements, the hexavalent chromium samples are tapped for analysis from a 24-hour effluent composite. Since the maximum holding time for hexavalent chromium samples is 24-hours, these samples are invalid. It is recommended, therefore, that the State (OEPA) change the facility's permit requirements to allow the collection of grab samples for the analysis of hexavalent chromium. It would be the permittee's responsibility to ensure that the grab samples will be analyzed within the maximum holding period.

With the exception of the physical parameters temperature and dissolved oxygen, and the chemical parameters total chromium and sulfide, the permittee's required parameters are adversely affected by lack of refrigeration prior to analysis. Based on this, the overall on-site sample monitoring practice was rated as less than marginal.

2. Laboratory

- a. Laboratory facilities (bench and storage space, floor area, lighting, amperage, potable water supply, air conditioning, etc.) were satisfactory.
- b. The laboratory has a Culligan - Aqua Summa Reagent Water System (consisting of reverse osmosis, deionization and filtration). This laboratory water is piped to the laboratory via PVC piping. The facility also has a Barnstead Sybron glass still for the generation of distilled water to be used exclusively in the BOD₅ test.

- c. The laboratory instruments were found to be clean and in working order. All instruments (pH meter, D.O. meter, ion analyzer, distillation and digestion apparatus, incubators, spectrophotometers, atomic absorption unit, baths, etc.) required for the list of parameters analyzed were present. All required glassware was present and in clean condition.
- d. The calibration (and maintenance) of the instruments was found to be satisfactory. The analytical balance was last serviced and calibrated (by a Mettler service representative) on February 2, 1989.
- e. The laboratory thermometers are calibrated at least annually against a thermometer that is traceable to the National Institute of Standards and Technology, formerly the National Bureau of Standards.
- f. Methodology by approved EPA referenced procedures was in practice for the following parameters:
 - 1) Temperature Measurement (Continuous monitor calibrated against a grab sample).
 - 2) Dissolved Oxygen
 - 3) COD
 - 4) TSS
 - 5) Oil & Grease
 - 6) T. Phos.
 - 7) Cyanide (Total and Free)
 - 8) Sulfide
 - 9) T. Chromium
 - 10) Phenolics
 - 11) Hexavalent Chromium (Note: The Cr^{+6} samples were invalid because of excessive holding time)
- g. The following deficiencies were observed in the methodology for BOD₅ and ammonia-nitrogen:
 - 1) BOD₅ dilution water blank values were chronically high (between 0.6 - 1.36 mg O₂/L).
 - 2) The ammonia-nitrogen samples are not manually distilled prior to analysis. The laboratory was advised that the manual distillation of the NH₃-N samples is required unless the permittee can show through a comparative study it has conducted on representative effluent samples that the preliminary distillation step is not necessary. A copy of the study would have to be kept on company file. Manual distillation of the ammonia-nitrogen samples, however, would be required to resolve any controversies. The permittee did not present evidence of having conducted such a study.

- h. Although hexavalent chromium is determined by the approved EPA referenced method (Diphenylcarbizide Colorimetric, Method 307B, "Standard Methods", 14th Edition, as referenced in the Code of Federal Regulations, 40, 136.3), the samples are invalid nevertheless because of excessive holding time. See Section VI.B.3.
- i. The laboratory's quality assurance/quality control (QA/QC) program is generally acceptable. A QA/QC manual is available at the bench. Duplicates, spikes (where applicable), method blanks, and control check standards are determined.

The QA/QC manual vaguely cautions the analyst to check the samples to assure that they are not either "too hot" or "too cold" before analysis. The evaluator considers this to be a deficiency. The required temperature or temperature range for any given parameter should be clearly indicated. For example, the temperature of preservation for many NPDES parameters is 4°C. The manual should state this precisely. The QA/QC manual also should include the requirement for keeping daily or in-use temperature logs on all pieces of apparatus requiring continuous temperature maintenance.

- j. The NPDES monitoring data are retained for at least a minimum of three years.

Because of past deficiencies, the BOD₅ and hexavalent chromium data may have to be questioned.

- k. The permittee's results on DMR-QA Study 008 showed unacceptable reported values for ammonia-nitrogen, total phosphorus, total cyanide and total phenolics. In a letter dated October 7, 1988, the permittee responded to the Ohio EPA's request for an explanation concerning the above unacceptable results (see attachments).

Based on the above observations, overall laboratory practice was given a rating of better than marginal.

It must be emphasized that because of its nature, this type of evaluation highlights areas of deficiency rather than those areas meeting approved sampling and laboratory practice for NPDES monitoring.

NPDES Compliance Inspection Report

Section A: National Data System Coding

[illegible]

Section B: Facility Data

Section 211 Permit Name and Location of Facility Inspected B. P. OIL COMPANY, LIMA REFINERY 1150 SOUTH METCALF STREET LIMA, OHIO 45804-1199		Entry Time <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM 2:30 PM Exit Time/Date ABOUT 4:00 PM 07-11-89		Permit Effective Date 09-30-85 Permit Expiration Date 09-27-90	
Name(s) of On-Site Representative(s) MR. JEROME GRAMMAS MR. DENNIS GARIBIG		Title(s) ENVIRONMENTAL ENGINEER CHEMISTRY LAB SUPERVISOR		Phone No(s) 419-224-2592	
Name, Address of Responsible Official MR. DOUG F. FARRIS		Title PLANT MANAGER		Contacted <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		Phone No. 419-224-2477			

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	S	Flow Measurement	N/A	Pretreatment	S	Operations & Maintenance Sludge Disposal Other:
S	Records/Reports	M	Laboratory	N/A	Compliance Schedules	S	
S	Facility Site Review	S	Effluent/Receiving Waters	M	Self-Monitoring Program	-	

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

Section D: Summary of Findings/Conclusions/Practical Recommendations

Name(s) and Signature(s) of Inspector(s) <i>Clyde V. Marion</i> CLYDE V. MARION, PH.D.	Agency/Office/Telephone U. S. EPA, REGION V, ESD/CDO TEL: 312-886-6251	Date 09-11-89
Signature of Reviewer	Agency/Office	Date
Regulatory Office Use Only		
Action Taken	Date	Compliance Status <input type="checkbox"/> Noncompliance <input type="checkbox"/> Compliance

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

A. PERMIT VERIFICATION

YES	NO	N/A	INSPECTION OBSERVATION CONTAINED IN PERMIT
✓			1. Correct name and mailing address of permittee.
✓			2. Facility is as described in permit.
		✓	3. Notification has been given to EPA/State of new, different, increased discharges.
		✓	4. Accurate records of influent volume are maintained, when appropriate. <i>20% IS WELL H.S. + DUMP CURVES 80% OF H₂O IS BOGGT FROM CITY OF LIMA, OHIO. VOLUME IS RECORDED VIA IMR</i>
✓			5. Number and location of discharge points are as described in the permit.
✓			6. Name and location of receiving waters are correct. <i>OTTAWA RIVER</i>
✓			7. All discharges are permitted.

B. RECORDKEEPING AND REPORTING EVALUATION

			RECORDS AND REPORTS ARE MAINTAINED AS REQUIRED BY PERMIT
✓			1. All required information is available, complete, and current; and
✓			2. Information is maintained for required period.
✓			3. Analytical results are consistent with the data reported on the IMR's.
✓			4. Sampling and Analysis Data are adequate and include:
✓			a. <i>Dates, times, location of sampling</i>
✓			b. <i>Name of individual performing sampling</i>
✓			c. <i>Analytical methods and techniques</i>
✓			d. <i>Results of analysis</i>
✓			e. <i>Dates of analysis</i>
✓			f. <i>Name of person performing analysis</i>
		✓	g. Instantaneous flow at grab sample stations
			5. Monitoring records are adequate and include
✓			a. <i>Flow, pH, D.O.</i> etc. as required by permit
✓			b. Monitoring charts <i>TEMP., FLOW</i>
✓			6. Laboratory equipment calibration and maintenance records are adequate.
		✓	7. Plant Records are adequate* and include
		✓	a. O&M Manual
		✓	b. "As-built" engineering drawings
		✓	c. Schedules and dates of equipment maintenance and repairs
		✓	d. Equipment supplies manual
		✓	e. Equipment data cards

* Required only for facilities built with Federal construction grant funds.

N/A

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

B. Recordkeeping and Reporting Evaluation (continued)

YES	NO	N/A	8. Pretreatment records are adequate and included:
			a. Industrial Waste Ordinance (or equivalent documents)
			b. Inventory of industrial waste contributors, including:
			1. Compliance records
			2. User charge information
			9. SPCC properly completed, when required.
			10. Best Management Practices Program available, when required.

C. Compliance Schedule Status Review

			THE PERMITEE IS MEETING THE COMPLIANCE SCHEDULE
			1. The permittee has obtained necessary approvals to begin construction.
			2. Financing arrangements are completed.
			3. Contracts for engineering services has been executed.
			4. Design plans and specifications have been completed.
			5. Construction has begun.
			6. Construction is on schedule.
			7. Equipment acquisition is on schedule.
			8. Construction has been completed.
			9. Start-up has begun.
			10. The permittee has requested an extension of time.
			11. The permittee has met compliance schedule.

N/A

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

D. POTW Pretreatment Requires Review

YES	NO	N/A	THE FACILITY IS SUBJECT TO PRETREATMENT REQUIREMENTS
			1. Status of POTW Pretreatment Program
			a. The POTW Pretreatment Program has been approved by EPA. (If not, is approval in progress? _____)
			b. The POTW is in compliance with the Pretreatment Program Compliance Schedule. (If not, what is due, and intent of the POTW to remedy)
			2. Status of Compliance with Categorical Pretreatment Standards.
			a. How many industrial users of the POTW are subject to Federal or State Pretreatment Standards? _____
			b. Are these industries aware of their responsibility to comply with applicable standards?
			c. Have baseline monitoring reports (403.12) been submitted for these industries?
			i. Have categorical industries in noncompliance (on EMR reports) submitted compliance schedules?
			ii. How many categorical industries on compliance schedules are meeting the schedule deadlines? _____
			d. If compliance deadlines has passed, have all industries submitted 90 day compliance reports?
			e. Are all categorical industries submitting the required semiannual report?
			f. Are all new industrial discharges in compliance with new source pretreatment standards?
			g. Has the POTW submitted its annual pretreatment report?
			h. Has the POTW taken enforcement action against noncomplying industrial users?
			i. Is the POTW conducting inspections of industrial contributors?
			3. Are the industrial users subject to Prohibited Limits (403.5) and local limits more stringent tha EPA in compliance? (If not , explain why, including need for revision limits.)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
✓			1. Standby power or other equivalent provision is provided. <i>For ENTIRE FACILITY</i>
✓			2. Adequate alarm system for power or equipment failures is available.
		✓	3. POTW handles and disposes of sludge according to applicable Federal, State, and local regulators.
✓			4. All treatment units, other than back-up units, are in service.
✓			5. Procedures for facility operation and maintenance exist.
✓			6. Organization plan (chart) for operation and maintenance is provided.
✓			7. Operating schedules are established.
✓			8. Emergency plan for treatment control is established. <i>IMPOUNDMENT CAPABILITIES</i>
✓			9. Operating management control documents are current and include:
✓			a. Operating report
✓			b. Work schedule
✓			c. Activity report (time cards)
✓			10. Maintenance record system exists and includes:
✓			a. As-built drawings
✓			b. Shop drawings
✓			c. Construction specifications
✓			d. Maintenance history
✓			e. Maintenance costs
			<i>For some of the units.</i>
✓			11. Adequate number of qualified operators are on hand.
✓			12. Established procedures are available for training new operators.
✓			13. Adequate spare parts and supplies inventory and major equipment specifications are maintained.
✓			14. Instruction files are kept for operation and maintenance of each item of major equipment.
✓			15. Operation and maintenance manual is available.
		✓	16. Regulatory agency was notified of bypassing. (Dates _____)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
✓			<div>17. Hydraulic and/or organic overloads are experienced.</div> <div>Reason for overloads <u>STORM SURGES</u></div> <div>_____</div> <div>_____</div> <div>_____</div>
✓			18. Up-to-date equipment repair records are maintained.
✓			19. Dated tags show out of service equipment.
✓			20. Routine and preventive maintenance are scheduled/performed on time.

PERMITTEE SAMPLING INSPECTION CHECKLIST

A. Permittee Sampling Evaluation

YES	NO	N/A	
✓			1. Samplings are taken at sites specified in permit.
✓			2. Locations are adequate for representative samples.
		✓	3. Flow proportioned samples are obtained where required by permit.
✓			4. Sampling and analysis completed on parameters specified by permit.
✓			5. Sampling and analysis done in frequency specified by permit.
✓			6. Permittee is using method of sample collection required by permit. Required Method: <u>24-Hour Composite, Grab</u> If not, method being used is: () Grab () Manual composite () Automatic composite
✓			7. Sample collection procedures are adequate:
	X		a. Samples refrigerated during compositing
			b. Proper preservation technique used
✓			c. Container and sample holding times before analyses conform with 40 CFR 136.3
		✓	8. Monitoring and analyses are performed more often than required by permit. If so, results reported in permittee's self-monitoring report.

B. Sampling Inspection Procedures and Observations

			1. Grab samples obtained
			2. Composite sample obtained Composite frequency _____ Preservation _____
			3. Sample refrigerated during compositing.
			4. Flow proportioned sample obtained.
			5. Sample obtained from facility sampling device.
			6. Sample representative of volume and nature of discharge.
			7. Sample split with permittee.
			8. Chain of custody procedures employed.

FLOW MEASUREMENT

A. Flow Measurement Inspection Checklist-General

YES	NO	N/A	
		<input checked="" type="checkbox"/>	1. Primary flow measurement device is properly installed and maintained.
<input checked="" type="checkbox"/>			2. Flow records are properly kept.
<input checked="" type="checkbox"/>			3. Sharp drops or increases in flow value are accounted for.
<input checked="" type="checkbox"/>			4. Actual flow discharge is measured.
		<input checked="" type="checkbox"/>	5. Influent flow is measured before all return lines.
		<input checked="" type="checkbox"/>	6. Effluent flow is measured after all lines.
<input checked="" type="checkbox"/>			7. Secondary instruments (totalizers, <u>recorders</u> , etc.) are properly operated and maintained.
	<input checked="" type="checkbox"/>		8. Spare parts are stocked. <i>Phasing out current recorder. Going to use ultrasonic flow measuring device. No spare parts for current flow measuring device are being stocked.</i>

B. Flow Measurement Inspection Checklist-Flumes

<input checked="" type="checkbox"/>			1. Flow entering flume appears reasonably well distributed across the channel and free of turbulence, boils, or other distortions.
<input checked="" type="checkbox"/>			2. Cross-section velocities at entrance are relatively uniform.
<input checked="" type="checkbox"/>			3. Flume is clean and is free of debris or deposits.
<input checked="" type="checkbox"/>			4. All dimensions of flume are accurate.
<input checked="" type="checkbox"/>			5. Side walls of flume are vertical and smooth.
<input checked="" type="checkbox"/>			6. Sides of flume throat are vertical and parallel.
<input checked="" type="checkbox"/>			7. Flume head is being measured at proper location.
<input checked="" type="checkbox"/>			8. Measurement of flume head is zeroed to flume crest.
<input checked="" type="checkbox"/>			9. Flume is of proper size to measure range of existing flow.
<input checked="" type="checkbox"/>			10. Flume is operating under free-flow conditions over existing range of flows.

FLOW MEASUREMENT

C. Flow Measurement Inspection Checklist - Weirs

			1. What type of weir is being used? <u>N/A</u>
YES	NO	N/A	2. The weir is exactly level. <u>N/A</u>
			3. The weir plate is plumb and its top edges are sharp and clean.
			4. There is free access for air below the nappe of the weir.
			5. Upstream channel of weir is straight for at least four times the depth of water level, and free from disturbing influences.
			6. The stilling basin of the weir is of sufficient size and clear of debris.
			7. Head measurements are properly made by facility personnel.
			8. Proper flow tables are used by facility personnel.

D. Flow Measurement Inspection Checklist - Other Flow Devices

			1. Type of flowmeter used: <u>Parshall Flume</u>
			2. What are the most common problems that the operator has had with the flowmeter? <u>Cable comes off pulley</u>
			3. Measure Wastewater flow: <u>—</u> mgd; Recorded flow: <u>—</u> mgd; Error <u>—</u> %
			4. Design flow: <u>—</u> mgd. <u>about 10,000 GAL/MIN</u>
			5. Flow totalizer is properly calibrated.
			6. Frequency of routine inspection by proper operator: <u>1</u> /day.
			7. Frequency of maintenance inspections by plant personnel: <u>1</u> /year.
			8. Frequency of flowmeter calibration: <u>1</u> month <u>EVERY 3 MONTHS</u>
<input checked="" type="checkbox"/>			9. Flow measurement equipment adequate to handle expected ranges of flow rates.
	<input checked="" type="checkbox"/>		10. Venturi meter is properly installed and calibrated.
	<input checked="" type="checkbox"/>		11. Electromagnet flowmeter is properly calibrated.

LABORATORY QUALITY ASSURANCE CHECKLIST

A. General

YES	NO	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Written laboratory quality assurance manual is available.

B. Laboratory Procedures

YES	NO	N/A	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. EPA approved analytical testing procedures are used. <i>Except for BODs, NH₄-N and CR + k. See Report.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. If alternative analytical procedures are used, proper approval has been obtained. <i>Request for approval to determine oil & grease by an ^{alternate} test proc</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Calibration and maintenance of instruments and equipment is satisfactory.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Quality control procedures are used.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Quality control procedures are adequate.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Duplicate sample are analyzed <u>100</u> % of time.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Spiked samples are used <u>100</u> % of time.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Commercial laboratory is used: <div style="margin-left: 40px;"> Name: <u>NONE</u> Address: <u>N/A</u> Contact: <u>N/A</u> Phone: <u>N/A</u> </div>

C. Laboratory Facilities and Equipment

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Proper grade distilled water is available for specific analysis.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Dry, uncontaminated compressed air is available.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Fume hood has enough ventilation capacity.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. The laboratory has sufficient lighting.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Adequate electrical sources are available.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Instruments/equipment are in good condition.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Written requirements for daily operation of instruments are available.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

C. Laboratory Facilities and Equipment (continued)

YES	NO	N/A	
✓			8. Standards are available to perform daily check procedures.
✓			9. Written trouble-shooting procedures for instruments are available.
✓			10. Schedule for required maintenance exists.
✓			11. Proper volumetric glassware is used.
✓			12. Glassware is properly cleaned.
✓			13. Standard reagents and solvents are properly stored.
✓			14. Working standards are frequently checked.
✓			15. Standards are discarded after shelf life has expired.
		✓	16. Background reagents and solvents run with every series of samples.
→	x		17. Written procedures exist for cleanup, hazardous response methods, and applications of correction methods for reagents and solvents.
✓			18. Gas cylinders are replaced at 100-200 psi.

D. Laboratory's Precision, Accuracy, and Control Procedures

4 out of 7	✓		1. A minimum of seven replicates is analyzed for each type of control check and this information is on record.
✓			2. Plotted precision and accuracy control charts are used to determine whether valid, questionable, or invalid data are being generated from day to day.
✓			3. Control samples are introduced into the train of actual samples to ensure that valid data is being generated.
✓			4. The precision and accuracy of the analyses are good.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

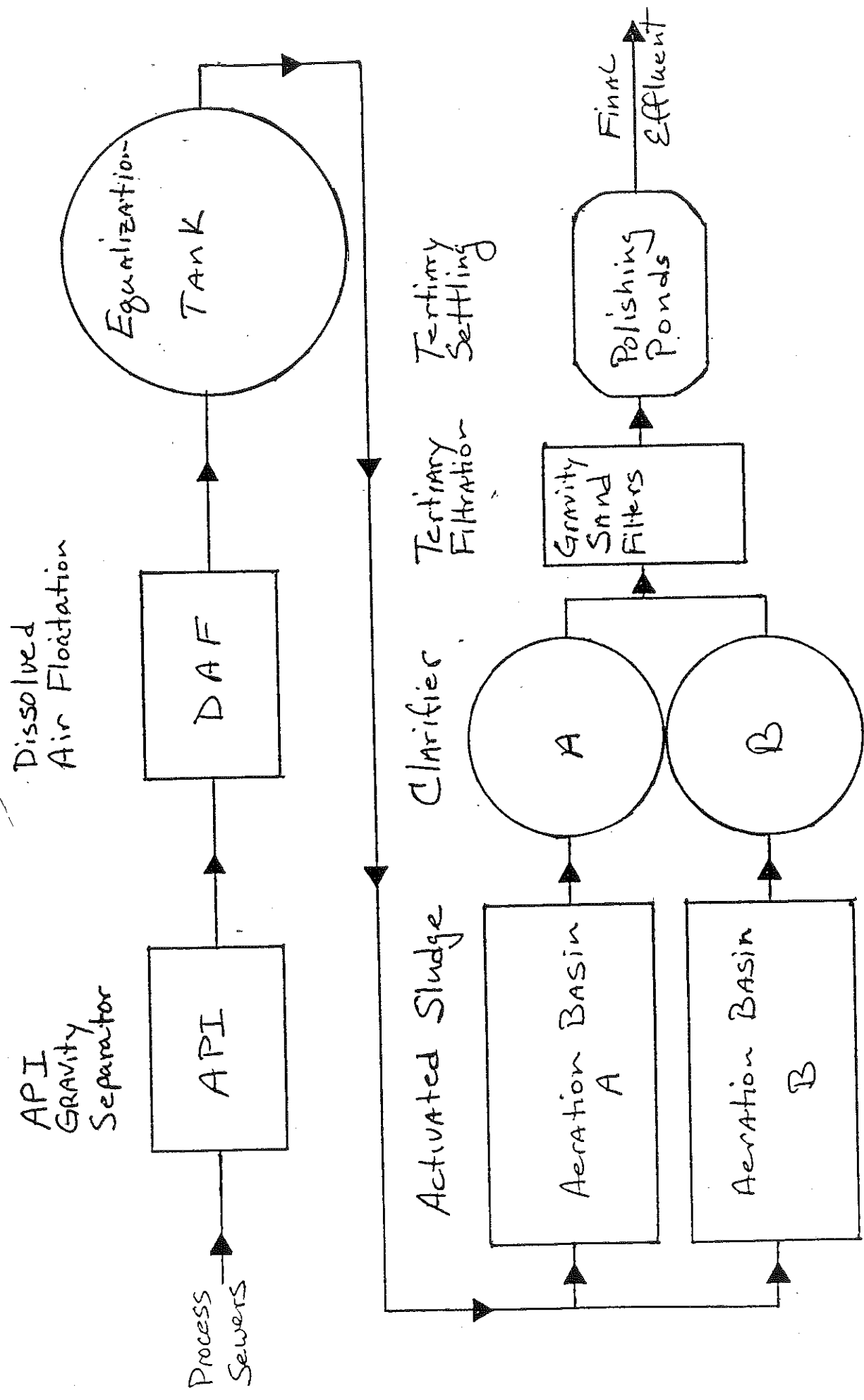
E. Data Handling and Reporting

YES	NO	N/A	
<input checked="" type="checkbox"/>			1. Round-off rules are uniformly applied.
<input checked="" type="checkbox"/>			2. Significant figures are established for each analysis.
<input checked="" type="checkbox"/>			3. Provision for cross-checking calculations is used.
<input checked="" type="checkbox"/>			4. Correct formulas are used to reduce to simplest factors for quick, correct calculations.
<input checked="" type="checkbox"/>			5. Control chart approach and statistical calculations for quality assurance and report are available and followed.
<input checked="" type="checkbox"/>			6. Report forms have been developed to provide complete data documentation and permanent records and to facilitate data processing.
<input checked="" type="checkbox"/>			7. Data are reported in proper form and units.
<input checked="" type="checkbox"/>			8. Laboratory records are kept readily available to regulatory agency for required period of time.
<input checked="" type="checkbox"/>			9. Laboratory notebook or preprinted data forms are permanently bound to provide good documentation.
<input checked="" type="checkbox"/>			10. Efficient filing system exists enabling prompt channeling of report copies.

F. Laboratory Personnel

<input checked="" type="checkbox"/>			1. The analyst has appropriate training
<input checked="" type="checkbox"/>			2. The analyst follows the specified procedures
<input checked="" type="checkbox"/>			3. The analyst is skilled in performing analyses

LIMA REFINERY WASTEWATER PLANT



PERFORMANCE EVALUATION REPORT

Re: Allen Co.
Sol: O O: I CO.

DATE: 7/11/8

DMR-2A STUDY NUMBER 008

60

PERMITTEE: OH0002623

STANDARD OIL COMPANY

IX

ANALYTES	V P	REPORT VALUE	TRUE VALUE*	ACCEPTANCE LIMITS	WARNING LIMITS	PERFORMANCE EVALUATION
----------	--------	-----------------	----------------	----------------------	-------------------	---------------------------

TRACE METALS IN MICROGRAMS PER LITER:

CHROMIUM	738.	832	673.- 967.	709.- 930.	ACCEPTAI
----------	------	-----	------------	------------	----------

MISCELLANEOUS ANALYTES:

PH-UNITS	7.5	7.50	7.28- 7.66	7.33- 7.61	ACCEPTAI
----------	-----	------	------------	------------	----------

TOTAL SUSPENDED SOLIDS (IN MG/L)	62.00	56.3	44.9- 67.7	47.7- 64.9	ACCEPTAI
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OIL AND GREASE (IN MG/L)	14.1	14.0	6.52- 18.7	8.04- 17.2	ACCEPTAI
-----------------------------	------	------	------------	------------	----------

NUTRIENTS IN MILLIGRAMS PER LITER:

AMMONIA-NITROGEN	17.1	2.10	1.59- 2.63	1.71- 2.50	NOT ACCEPTAI
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TOTAL PHOSPHORUS	2.49	9.50	7.45- 11.0	7.87- 10.6	NOT ACCEPTAI
------------------	------	------	------------	------------	--------------

DEMANDS IN MILLIGRAMS PER LITER:

COD	24.00	25.0	13.7- 34.4	16.3- 31.8	ACCEPTAI
-----	-------	------	------------	------------	----------

5-DAY BOD	10.00	16.0	7.54- 24.4	9.63- 22.3	ACCEPTAB
-----------	-------	------	------------	------------	----------

* BASED UPON THEORETICAL CALCULATIONS, OR A REFERENCE VALUE WHEN NECESSARY

PERFORMANCE EVALUATION REPORT

DATE: 7/11/88

DMR-2A STUDY NUMBER 008

PERMITTEE: OH0002623

STANDARD OIL COMPANY

IX

ANALYTES	V P	REPORT VALUE	TRUE VALUE*	ACCEPTANCE LIMITS	WARNING LIMITS	PERFORMANCE EVALUATION
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ADDITIONAL MISCELLANEOUS ANALYTES:

TOTAL CYANIDE (IN MG/L)	0.21	0.460	.308-	.587	.343-	.552 NOT ACCEPTABI
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TOTAL PHENOLICS (IN MG/L)	96.00	0.134	.0538-	.214	.0740-	.194 NOT ACCEPTABI
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* BASED UPON THEORETICAL CALCULATIONS, OR A REFERENCE VALUE WHEN NECESSARY.



SOHIO OIL COMPANY

1150 SOUTH METCALF ST., LIMA, OHIO 45804-1199

October 7, 1988

Tutu Rosanwo
DMR QA State Coordinator
Ohio EPA
1030 King Avenue
Columbus, Ohio 43212

G6-88-02

EPA DMR QA NUMBER 008
Permittee OH 000263 Sohio Oil Lima, Ohio
26-33

Sohio Oil Lima Refinery's lab tested samples the weeks of 3/21/88 and 3/28/88. The results were received 8/23/88. Four of our test results were evaluated as "NOT ACCEPTABLE". We are responding here to the report.

Attached are the responses with appropriate documentation. The items will be addressed in order. Originals of all documents are available for your inspection if necessary.

Please call R. P. Schmidt, at (419) 226-2321, should you have any questions.


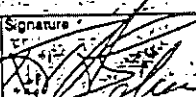
Sincerely,

T. A. Schreiner
Refinery Manager

RPS/EPA-RPT/bkm
10/7/88

Attachment

R. P. Schmidt

 EPA		United States Environmental Protection Agency Washington, DC 20460		Study No.	Permit Number	Car. No.
NPDES (DMR QA)		Laboratory Performance Evaluation		(These data are collected under the authority of the Federal Water Pollution Control Act.)		
Current Permittee Address Label				0 H T O 0 0 2 6 2 3		
Enter Permittee Name as Desired for Report Heading		SCHMIDT OIL				
Laboratory 1						
Name R. P. Schmidt		Address 1150 South Metcalf St. Lima, Ohio 45804		Analytes		Multiple Permit Option Exercised: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Mark 'X' for type of Laboratory <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local Government <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Other						
Laboratory 2 (if any)						
Name		Address		Analytes		Multiple Permit Option Exercised: <input type="checkbox"/> Yes <input type="checkbox"/> No
Mark 'X' for type of Laboratory <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local Government <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Other						
The Multiple Permit Option was used and the following data resulted from analyzing the samples mailed to another permit number (specify)						
Certification (By permit holder or authorized representative as per 40 CFR Part 122.22. See instructions.)						
For Study Number Seven, conducted in February through June 1987, the permittee below:						
Received Samples		Submitted Data		Received a Report in Response		
Yes No X		Yes No X		Yes No X		
71 72		74 75		77 78		
Permittee Name and Address (street no., city, State, and ZIP Code, if different from label above.)					Telephone Number	
Same as above.					419-226-2321	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.						
Name and Title of Certifying Official (type or print)		Signature		Date Signed		
T. A. Schriener Refinery Manager						

Study No. 1		Permit Number		NOB 0 H 0 0 0 2 6 2 3											
Study and Permit Number		Card No.	TRACE METALS (recovery in micrograms/l)												
			Aluminum				Arsenic				Barium				
			VA	MC	< / >	Quantity	VA	MC	< / >	Quantity	VA	MC	< / >	Quantity	
DUPLICATE		2													
			20	21	22	23	24	25	26	27	28	29	30	31	
			32	33	34	35	36	37	38	39	40	41	42	43	
			44	45	46	47	48	49	50	51	52	53	54	55	
			56	57	58	59	60	61	62	63	64	65	66	67	
			68	69	70	71	72	73	74	75	76	77	78	79	
			80	81	82	83	84	85	86	87	88	89	90	91	
			92	93	94	95	96	97	98	99	100	101	102	103	
			104	105	106	107	108	109	110	111	112	113	114	115	
			116	117	118	119	120	121	122	123	124	125	126	127	
			128	129	130	131	132	133	134	135	136	137	138	139	
			140	141	142	143	144	145	146	147	148	149	150	151	
			152	153	154	155	156	157	158	159	160	161	162	163	
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			176	177	178	179	180	181	182	183	184	185	186	187	
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			560	561	562	563	564	565	566	567	568	569	570	571	
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			620	621	622	623	624	625	626	627	628	629	630	631	
			632	633	634	635	636	637	638	639	640	641	642	643	
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			668	669	670	671	672	673	674	675	676	677	678	679	
			680	681	682	683	684	685	686	687	688	689	690	691	
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			896	897	898	899	900	901	902	903	904	905	906	907	
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			932	933	934	935	936	937	938	939	940	941	942	943	
			944	945	946	947	948	949	950	951	952	953	954	955	
			956	957	958	959	960	961	962	963	964	965	966	967	
			968	969	970	971	972	973	974	975	976	977	978	979	
			980	981	982	983	984	985	986	987	988	989	990	991	
			992	993	994	995	996	997	998	999	1000	1001	1002	1003	
			1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	
			1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	
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			1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	
			1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	
			1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	
			1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	
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			1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	
			1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	
			1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	
			1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	
			1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	
			1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	
			1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	
			1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	
			1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	
			1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230		



SOHIO OIL COMPANY

1150 SOUTH METCALF ST., LIMA, OHIO 45804-1199

OIL AND GREASE METHOD

EPA method 413.2, infrared Spectrophotometric, was used to determine the oil and grease content of the sample.

RPS/blf
FILE NAME: DMROAS

PERFORMANCE EVALUATION REPORT

DATE: 7/11/88

DMR-2A - STUDY NUMBER 008

PERMITTEE: OH0002623

STANDARD OIL COMPANY

IX

ANALYTES	V P	REPORT VALUE	TRUE VALUE*	ACCEPTANCE LIMITS	WARNING LIMITS	PERFORMANCE EVALUATION
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TRACE METALS IN MICROGRAMS PER LITER:

CHROMIUM		738.	832	673.- 967.	709.- 930.	ACCEPTABLE
----------	--	------	-----	------------	------------	------------

MISCELLANEOUS ANALYTES:

PH-UNITS		7.5	7.50	7.28- 7.66	7.33- 7.61	ACCEPTABLE
----------	--	-----	------	------------	------------	------------

TOTAL SUSPENDED SOLIDS (IN MG/L)		62.00	56.3	44.9- 67.7	47.7- 64.9	ACCEPTABLE
-------------------------------------	--	-------	------	------------	------------	------------

OIL AND GREASE (IN MG/L)		14.1	14.0	6.52- 18.7	8.04- 17.2	ACCEPTABLE
-----------------------------	--	------	------	------------	------------	------------

NUTRIENTS IN MILLIGRAMS PER LITER:

AMMONIA-NITROGEN		17.1	2.10	1.59- 2.63	1.71- 2.50	NOT ACCEPTABLE
------------------	--	------	------	------------	------------	----------------

TOTAL PHOSPHORUS		2.49	9.50	7.45- 11.0	7.87- 10.6	NOT ACCEPTABLE
------------------	--	------	------	------------	------------	----------------

DEMANDS IN MILLIGRAMS PER LITER:

COD		24.00	25.0	13.7- 34.4	16.3- 31.8	ACCEPTABLE
-----	--	-------	------	------------	------------	------------

5-DAY BOD		10.00	16.0	7.54- 24.4	9.63- 22.3	ACCEPTABLE
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* BASED UPON THEORETICAL CALCULATIONS, OR A REFERENCE VALUE WHEN NECESSARY.

PAGE 1

PERFORMANCE EVALUATION REPORT

DATE: 7/11/88

DMR-2A STUDY NUMBER 008

PERMITTEE: OH0002623

STANDARD OIL COMPANY

IX

ANALYTES	V P	REPORT VALUE	TRUE VALUE*	ACCEPTANCE LIMITS	WARNING LIMITS	PERFORMANCE EVALUATION
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ADDITIONAL MISCELLANEOUS ANALYTES:

TOTAL CYANIDE (IN MG/L)		0.21	0.460	.308- .587	.343- .552	NOT ACCEPTABLE
----------------------------	--	------	-------	------------	------------	----------------

TOTAL PHENOLICS (IN MG/L)		96.00	0.134	.0538- .214	.0740- .194	NOT ACCEPTABLE
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* BASED UPON THEORETICAL CALCULATIONS, OR A REFERENCE VALUE WHEN NECESSARY.

PAGE 2 (LAST PAGE)

Report received from EPA 8/23/88.

AMMONIA

The reported value for ammonia was incorrectly typed. The following page is the worksheet that Lima Refinery laboratory personnel use to tabulate their results. The laboratory found 1.71 mg/liter. Our accuracy standard for the day was 0.50 mg/liter versus 0.49 mg/liter. Our precision duplicate was 1.70 mg/liter and 1.72 mg/liter averaged to get 1.71 mg/liter.

CHECK FOR
BIBUL NOW!

WORKSHEET FOR OUTFALL SAMPLES

DATE 3-23

STD.

RUN 1

RUN 2

AV.

ROUNDING OFF

D.O.					NEAREST TENTH (X.X)
COD (50)	Absorbance PPM	.033 51.7	.016 24.0	.016 24.0	24 NEAREST WHOLE NUMBER
pH		7.414	7.526		NEAREST TENTH (X.X)
TSS (76)	mg (Paper + TSS) - mg (Paper) mg (TSS) mg/L TSS	1771 1698 73	1670 1075 62		NEAREST WHOLE NUMBER
Total Cyanide (.04)	ml distillate used Absorbance ug CN mg/L CN	20 5837 .03732	20 2.282 2.031	20 2.287 2.015	.21 NEAREST HUNDREDTH (X.XX)
Free Cyanide	ml distillate used Absorbance ug CN mg/L CN				NEAREST HUNDREDTH (X.XX)
Ammonia NH₃ Std .50	ug S mg/L S	.49 _____	1.70 _____	1.72 _____	1.71 NEAREST TENTH (X.X)
Phenols (30)	Absorbance ug Phenol ug/L Phenol	.1054 28.29470	.3508 24.1941	.3607 25.3526	NEAREST WHOLE NUMBER NO ANSWER LESS THAN 5
Total P (.60)	Absorbance mg/L P	.7324 59	.8737 2.21	.8850 2.79	2.405 NEAREST HUNDREDTH (X.XX)
Hex. Cr.	Absorbance ug Cr ug/L Cr Total Cr				NEAREST WHOLE NUMBER
Total Cr. (Std = 45)		42.3	72.4	73.9	73.9 NEAREST WHOLE NUMBER

Unsoluble P

Std
1.02

45.5
1.15

1.09

CCM/tam/OUTFALL1
2/25/88

Lima Refinery laboratory worksheet

PHOSPHORUS

The test method Lima Refinery laboratory uses for determining phosphorus, 365.2, is not valid for the DMR QA 008 sample. This inadequacy was noted in the EPA DMR QA Study Number 007. The test method 365.2 has been adequate for meeting our typical outfall requirements. Though we intended, as noted in our response to DMR 007, to acquire an automatic analyzer suitable for Method 365.4, we did not get funding in place in time for this DMR QA 008. Funding has been approved and the equipment has been purchased and will be set up before the end of this year.

WH ?

---> Standard Calibration Report <---

Date : 03-29-1988
Time : 13:20:01
Operator : HI

File Name : D:\phosstd.STD

Sample Name : PHOSPHORUS
Solvent Name : WATER
Conc Units : MG/L

Analytical Wavelength : 650 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 650
Integration Time : 10 seconds

Analytical Function Concentration = +2.532E+00 * Absorbance

STD #	Concentration	Absorbance	% Error
1	0.01000	0.0050	-33.643 %
2	0.03000	0.0150	-20.929 %
3	0.05000	0.0242	-19.312 %
4	0.10000	0.0413	-4.328 %
5	0.20000	0.0811	-2.500 %
6	0.30000	0.1231	-3.783 %
7	0.40000	0.1582	-0.166 %
8	0.50000	0.1921	+2.793 %

Confirmation : 650 nm Concentration = +2.532E+00 * Absorbance

STD #	Concentration	Absorbance	% Error
1	0.01000	0.0050	-33.643 %
2	0.03000	0.0150	-20.929 %
3	0.05000	0.0242	-19.310 %
4	0.10000	0.0413	-4.328 %
5	0.20000	0.0811	-2.500 %
6	0.30000	0.1231	-3.783 %
7	0.40000	0.1582	-0.166 %
8	0.50000	0.1921	+2.793 %

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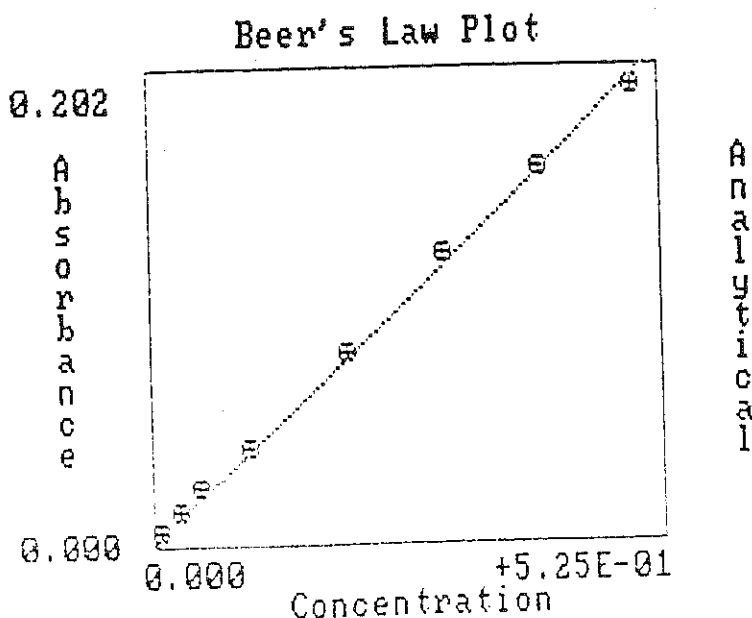
---> Standard Calibration Report <---

Date : 03-29-1988
Time : 13:20:12
Operator : HI

File Name : D:\phosstd.STD

Sample Name : PHOSPHORUS
Solvent Name : WATER
Conc Units : MG/L

Analytical Wavelength : 650 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 650
Integration Time : 10 seconds



Calibration report for Phosphorus test.
365.2 (.01 - .5 mg/l)

---> Quantitation Results Report <---

Date : 03-23-1988
Time : 10:52:06
Operator : WEDNESDAY CHILD

File Name : D:\PHOSSTD.STD

Sample Name : PHOSPHORUS
Solvent Name : WATER
Conc Units : MG/L

Analytical Wavelength : 650 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 650
Confirmation Tolerance : 1 %

SAMPLE #	Wavelength	Absorbance	Concentration
1	Analytical	+0.2324	0.58854
	Confirm 650 nm	+0.2324	0.58654
2	Analytical	+0.4084	1.03430
	Confirm 650 nm	+0.4084	1.03430
3	Analytical	+0.4548	1.15169
	Confirm 650 nm	+0.4548	1.15169
4	Analytical	+0.8737	2.21256
	Confirm 650 nm	+0.8737	2.21256
5	Analytical	+1.0859	2.77520
	Confirm 650 nm	+1.0859	2.77520

High
outside of test
limit

Results for phosphorus test.

TOTAL CYANIDE

The results for the total cyanide test were incorrectly interpreted. Our calibration curve for cyanide is set up for the region in which our usual outfall operates (.02-.1 mg/liter). The UV-VIS spectrophotometer we use for doing our analysis is a diode array instrument. This type of instrument provides virtually exact wavelength reproducibility. Quantitation can be performed on the sides of the absorbance bands. This was done using 620 nm.

The technician was unfamiliar with concept of failure of Beers law when absorbances are excessive and with cyanide levels this high. The properly reported value should have been 0.425 mg/l. We have initiated appropriate training to remedy this.

SHOULD HAVE
DILUTED SAM

14100516 NT

---> Standard Calibration Report <---

Date : 03-29 3
Time : 13:17
Operator : HI

File Name : D:\cn2std.STD

Sample Name : CN STD.
Solvent Name :
Conc Units :

Analytical Wavelength : 578 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 578 620
Integration Time : 10 seconds

Analytical Function Concentration = +6.394E-02 * Absorbance

STD #	Concentration	Absorbance	% Error
1	0.02000	0.3947	-20.754 %
2	0.04000	0.6844	-8.595 %
3	0.08000	1.2054	+3.796 %
4	0.10000	1.5539	+0.647 %
5	0.10000	1.5628	+0.074 %

Confirmation : 578 nm Concentration = +6.394E-02 * Absorbance

STD #	Concentration	Absorbance	% Error
1	0.02000	0.3947	-20.754 %
2	0.04000	0.6844	-8.595 %
3	0.08000	1.2054	+3.796 %
4	0.10000	1.5539	+0.647 %
5	0.10000	1.5628	+0.074 %

Confirmation : 620 nm Concentration = +1.054E+00 * Absorbance

STD #	Concentration	Absorbance	% Error
1	0.02000	0.0285	-34.188 %
2	0.04000	0.0450	-16.549 %
3	0.08000	0.0750	-1.058 %
4	0.10000	0.0891	+5.441 %
5	0.10000	0.0913	+2.920 %

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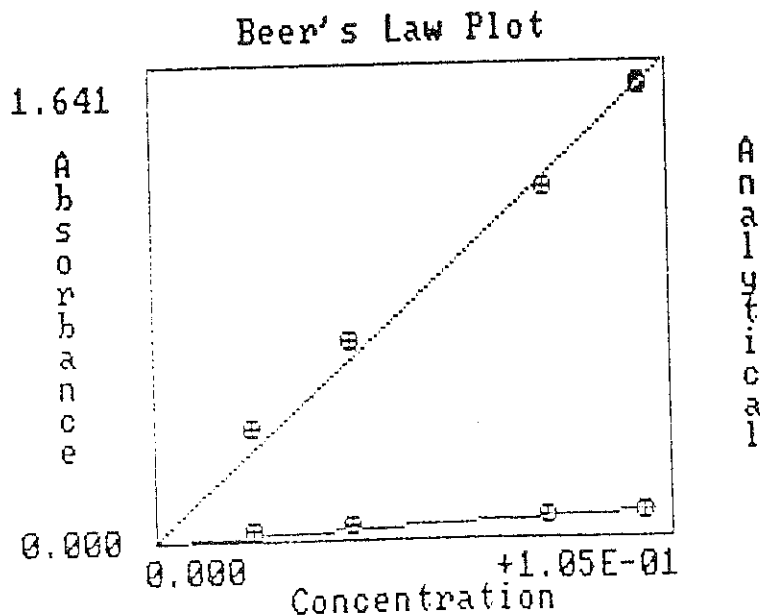
---> Standard Calibration Report <---

Date : 03-29-1988
Time : 13:18:04
Operator : HI

File Name : D:\cn2std.STD

Sample Name : CN STD.
Solvent Name :
Conc Units :

Analytical Wavelength : 578 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 578 620
Integration Time : 10 seconds



Calibration report for cyanide test
Note the 2 wavelengths used; 578 nm and 620 nm.

---> Quantitation Results Report <---

Date : 03-26-1988
Time : 15:34:23
Operator : Not Entered

File Name : QICNISTD.STD

Sample Name : CN STD.
Solvent Name :
Conc Units :

Analytical Wavelength : 578 nm
Reference Wavelength : None Selected
Confirmation Wavelengths : 578 620
Confirmation Tolerance : 1 %

SAMPLE #	Wavelength	Absorbance	Concentration	std
1	Analytical	+0.5837	0.03732	.04
	Confirm 578 nm	+0.5837	0.03732	
	Confirm 620 nm	+0.0291	0.02997 **	
2	Analytical	+3.2892	0.21031	.425
	Confirm 578 nm	+3.2892	0.21031	
	Confirm 620 nm	+0.3891	0.41414 **	
3	Analytical	+3.2977	0.21085	.425
	Confirm 578 nm	+3.2977	0.21085	
	Confirm 620 nm	+0.4089	0.43523 **	

Results for cyanide test.

AUG/88

LABORATORY INFORMATION SYSTEM
SPECIFIC SAMPLE/TEST METHOD RETRIEVAL

PAGE

1

SAMPLE CODE: 42010 DESCRIPTION: WASTEWATEROUTFALL 24 HR COMP
 LOCATION CODE: 42010
 METHOD CODE: T017 METHOD DESCRIPTION: CYANIDE,TOTAL
 RESULT CODE: 0379 RESULT DESCRIPTION: CYANIDE,TOTAL

SAMPLE	SAMPLE	TESTED	ACT. DATE/TIME
DATE	TIME	RESULT	RECORDED
1	88/01/04 0800	.02	88/01/05 1542
2	88/01/08 0800	.02	88/01/08 1521
3	88/01/11 0800	.02	88/01/12 1606
4	88/01/18 0800	.02	88/01/19 1546
5	88/01/21 0800	.02	88/01/22 1535
6	88/01/25 0800	.03	88/01/26 1548
7	88/02/01 0800	.02	88/02/02 1536
8	88/02/04 0800	.02	88/02/05 1649
9	88/02/09 0800	.02	88/02/09 1601
10	88/02/11 0800	.02	88/02/12 1604
11	88/02/15 0800	.02	88/02/16 1507
12	88/02/18 0800	.02	88/02/19 1616
13	88/02/23 0800	.02	88/02/24 1223
14	88/02/26 0800	.02	88/02/26 1618
15	88/02/29 0800	.02	88/03/01 1550
16	88/03/03 0800	.03	88/03/04 1618
17	88/03/08 0800	.02	88/03/08 1555
18	88/03/10 0800	.02	88/03/11 1602
19	88/03/14 0800	.02	88/03/15 1649

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SPECIFIC SAMPLE/TEST METHOD RETRIEVAL

SAMPLE CODE: 42010 DESCRIPTION: WASTEWATEROUTFALL 24 HR COMP
 LOCATION CODE: 42010
 METHOD CODE: T017 METHOD DESCRIPTION: CYANIDE,TOTAL
 RESULT CODE: 0379 RESULT DESCRIPTION: CYANIDE,TOTAL

SAMPLE	SAMPLE	TESTED	ACT. DATE/TIME
DATE	TIME	RESULT	RECORDED
20	88/03/17 0800	.02	88/03/18 1620
21	88/03/21 0800	.02	88/03/22 1641
22	88/03/25 0800	.02	88/03/25 1612
23	88/03/28 0800	.02	88/03/29 1653
24	88/03/30 0800	.02	88/03/31 1617
25	88/04/04 0800	.03	88/04/04 1619
26	88/04/06 0800	.02	88/05/05 1043
27	88/04/10 0800	.03	88/04/11 1614
28	88/04/13 0800	.03	88/04/14 1540
29	88/04/17 0800	.02	88/04/18 1631
30	88/04/20 0800	.02	88/04/21 1549
31	88/04/24 0800	.02	88/04/25 1609
32	88/04/27 0800	.02	88/04/28 1525
33	88/05/01 0800	.02	88/05/02 1641
34	88/05/04 0800	.02	88/05/05 1529
35	88/05/09 0800	.04	88/05/09 1537
36	88/05/11 0800	.02	88/05/12 1556
37	88/05/15 0800	.02	88/05/16 1533
38	88/05/18 0800	.02	88/05/19 1527
39	88/05/22 0800	.02	88/05/23 1618

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SPECIFIC SAMPLE/TEST METHOD RETRIEVAL

Actual 0.46
 Reported 0.21
 standard .04 vs .03732
 Duplicate .21, .21
 - but, Abs was 3.3 AU
 not good, ...
 we don't work at all in this range
 but, confirmation wavelength
 did give concentration
 correctly at 0.42. This
 confirmation wavelength is fine
 high absorbance readings

Typical results for total cyanide (mg/l).

SAMPLE CODE: 42010 DESCRIPTION: WASTEWATEROUTFALL 24 HR COMP
 LOCATION CODE: 42010
 METHOD CODE: T017 METHOD DESCRIPTION: CYANIDE, TOTAL
 RESULT CODE: 0379 RESULT DESCRIPTION: CYANIDE, TOTAL

SAMPLE DATE	SAMPLE TIME	TESTED RESULT	ACT. DATE/TIME RECORDED
40	88/05/30 0800	.02	88/05/31 1551
41	88/05/02 0800	.02	88/05/03 0754
42	88/05/05 0800	.02	88/05/06 1532
43	88/05/08 0800	.02	88/05/09 1529
44	88/05/12 0800	.02	88/05/13 1513
45	88/05/15 0800	.02	88/05/16 1544
46	88/05/20 0800	.02	88/05/21 1722
47	88/05/22 0800	.02	88/05/23 1557
48	88/05/25 0800	.02	88/05/27 1505
49	88/05/29 0800	.02	88/05/30 1555
50	88/07/04 0800	.02	88/07/05 1751
51	88/07/07 0800	.02	88/07/07 1544
52	88/07/11 0800	.02	88/07/12 1536
53	88/07/13 0800	.02	88/07/14 1547
54	88/07/18 0800	.02	88/07/18 1604
55	88/07/20 0800	.04	88/07/21 1613
56	88/07/25 0800	.02	88/07/25 1548
57	88/07/28 0800	.02	88/07/28 1554
58	88/07/31 0800	.03	88/08/01 1555
59	88/08/03 0800	.03	88/08/04 1711

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 SPECIFIC SAMPLE/TEST METHOD RETRIEVAL

SAMPLE CODE: 42010 DESCRIPTION: WASTEWATEROUTFALL 24 HR COMP
 LOCATION CODE: 42010
 METHOD CODE: T017 METHOD DESCRIPTION: CYANIDE, TOTAL
 RESULT CODE: 0379 RESULT DESCRIPTION: CYANIDE, TOTAL

SAMPLE DATE	SAMPLE TIME	TESTED RESULT	ACT. DATE/TIME RECORDED
60	88/08/18 0800	.01	88/08/18 1550
61	88/08/22 0800	.02	88/08/22 1621
62	88/08/25 0800	.02	88/08/25 1637

NUMBER OF OCCURANCES = 62
 TOTAL OF RESULTS = 1.3400
 MINIMUM RESULT = .0100
 MAXIMUM RESULT = .0400
 AVERAGE RESULTS = .0216

Typical results for total cyanide (mg/l).

TOTAL PHENOLICS

The results for the total phenolics were reported incorrectly. Our laboratory phenol results are in ug/l as required by our NPDES permit. The correct reported value is 0.096 mg/l.

OK

RPS/bkm/PHENOLICS
10/7/88

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION V

CENTRAL DISTRICT OFFICE, ENVIRONMENTAL SCIENCES DIVISION

STATE NOTIFICATION OF INSPECTION

Authority: SECTION 114(d)(1)-CLEAN AIR ACT, AS AMENDED

☒ CWA, ☐ TSCA, ☐ RCRA, ☐ SWDA

Source Name B. P. OIL COMPANY, LIMA (OHIO) REFINERY

Address 1150 SOUTH METCALF STREET

City LIMA

State OHIO

Person Notified MR. PAUL BROCK

Title _____

Organization OHIO EPA

Date of Notification JUNE 29, 1989

Planned Date of Inspection JULY 10-11, 1989

Purpose of Inspection (compliance monitoring, Enforcement Division request etc.)

PAI

Scope _____

Person Giving Notice CLYDE V. MARION, PH.D.

Title ENVIRONMENTAL SCIENTIST

Organization U. S. EPA, REGION V, ESD/CDO

Clyde V. Marion
(signature)

EPA, REGION V, ESD/CDO
(organization)